# Injuries in Missouri

## Focus on Unintentional Injuries

- **Falls**
- **Struck By/Against**
- **Motor Vehicle**
- **Cut/Pierce**
- **Overexertion**

# Focus on Falls

**Definition:**

The data reflected in the state and county profiles includes falls caused by same-level falls, such as slipping, tripping, and stumbling and falling from one level to another level, such as falling from a window, roof, chair, or into a hole. Data include falls from sidewalks, curbs, ladders, playground equipment, furniture, trees, and commodes.

**The Problem:**

Every three minutes a Missourian who is injured as a result of a fall seeks treatment in the emergency room or hospital. One person dies every day as a result of a fall. Falls are the leading cause of unintentional injury for all Missourians.

Falls are a serious public health problem among older adults. Missourians over the age of 65 years suffer fall-related injuries at a greater rate, 5,075 per 100,000 population, than any other age group. Women over 65 years of age experience the greatest rate of fall-related injuries at 6,324 per 100,000. Men over age 65 have a rate of 3,247 fall-related injuries per 100,000. Sixty-four percent of all injuries for Missourians over 65 are the result of a fall.

According to the Centers for Disease Control and Prevention, the most common fall-related injuries are osteoporotic fractures. These are fractures of the hip, spine, or forearm. Of all fall-related fractures, hip fractures are the most serious and lead to the greatest number of health problems and deaths. Half of older adults who suffer a hip fracture never regain their previous level of functioning.

Children are also at greater risk for falls. The rate of falls among children under age 15 is 3,935 per 100,000. Boys experience falls at a rate of 4,330 per 100,000 compared to girls at a rate of 3,520 per 100,000.

According to the Centers for Disease Control and Prevention, the majority of childhood fall-related injuries occur at home, particularly among younger children. Falls are responsible for more open wounds, fractures, and brain injuries than any other cause of injury.

**Evidence-Based Prevention Interventions:**

**For Individuals/Parents:**

- ✓ Exercise regularly to improve strength and balance.
- ✓ Assure medications are used correctly as prescribed by a physician.
- ✓ Assure play environments are safe from hazards.
- ✓ Keep floors clear of clutter, telephone and electrical cords, and other hazardous items that can cause tripping or stumbling.
- ✓ Keep floors clean from grease, water, or other liquids that can cause slipping.
- ✓ Use only non-skid throw rugs to reducing slipping hazards.

# Focus on Falls

- ✓ Install handrails in stairways, ramps, and bathrooms.
- ✓ Use adequate lighting to ensure proper vision in living, walking, and working areas.
- ✓ Use caution when climbing and reaching high places. Assure ladders or step stools are sturdy and properly positioned to prevent falls.
- ✓ Actively and diligently supervise young children to prevent falls.

**For Community Leaders and Policy Makers:**

- ✓ Conduct community-based education programs to provide information about risks for hip fractures and fall prevention strategies.
- ✓ Educational programs should include information about wellness activities, fitness, nutrition, home environment hazards, clinical assessments of risks for falling and hip fractures, and referrals for follow-up.
- ✓ Consider implementing or modifying home visitation programs to (1) increase awareness of injury prevention and potential hazards and risks; (2) engage participants in dynamic, practical learning processes that promote risk reduction, and behavior and environment modification; and (3) identify residents who may benefit from home safety assessments.

To be effective, interventions must include a number of different strategies:

- Combining personalized attention, environmental changes, and medication reviews can reduce falls among nursing home residents.
- Including exercise, medication assessment, and education about risk factors can reduce falls among community dwelling older adults.
- Intervention programs are most effective when they are designed to reach those with the greatest risk of falling.
- Simple clinical screening tests can accurately identify seniors who are more likely to fall.
- Physical activities that improve strength, balance, and coordination reduce the risk of falls and fall-related injuries.
- Progressive resistance training can increase strength and improve mobility among frail individuals.
- Modifying the home environment may reduce risk factors for falls.

# Focus on Struck By/Against

**Definition:**

Injuries that result from being "struck by or against" include injuries caused by individuals being: (1) struck by falling objects; and (2) struck against or struck by objects or persons (bumping, colliding, kicking, or stepping into or against a moving or stationary object or person). Examples of being struck by falling objects include: falling rocks, trees, or tools falling from a ladder. Examples of being struck against or by objects/persons include: bumping into an open drawer, kicking a piece of furniture, being kicked or stepped on in a sports event, being struck by a baseball, or hockey stick or puck, being stepped on or pushed in a crowd of people.

**The Problem:**

Every five minutes a Missourian injured as a result of being struck by or against objects or person(s) seeks treatment in an emergency room or hospital. Every day, 232 people require an emergency room visit or hospitalization in Missouri because of an unintentional injury due to being struck by or against an object or person.

Adolescents and young adults between the ages of 15 and 25 years experience the greatest risk of injuries due to being struck by or against objects or persons. The rate of injuries to this group is 2,709.8 per 100,000 population. The rate for children under the age of 15 is 2,674 per 100,000.

Many of the childhood injuries caused by being struck by or against an object or person are related to sports and other recreational activities. According to the Children's Safety Network at the National Injury and Violence Prevention Resource Center, children sustain recreational injuries at a higher rate due to immature reflexes and underdeveloped coordination. In addition, the desire to experiment and inexperience in recognizing and evaluating risks associated with recreational activities contribute to the higher rate of injuries for children, adolescents, and young adults.

Athletes who participate in contact sports have high injury rates, however the most serious injuries result from individual activities. Trampolines, in-line skating, roller-skating, non-motorized scooters, and skateboarding activities lead to the largest number of injuries among children and adolescents.

**Evidence-Based Prevention Interventions:**

**For Individuals/Parents:**

- ✓ Train children when learning new recreational activities and supervise their activities.
- ✓ Wear safety gear and use safety equipment whether experienced or inexperienced.
- ✓ Supervise children to assure play environments are safe and free of hazards.
- ✓ Teach and enforce the "rules of the game" for children learning new sports or other recreational skills.
- ✓ Exercise regularly to build strength and coordination.

# Focus on Struck By/Against

- ✓ Practice new skills to learn coordination and gain experience.
- ✓ Avoid alcohol consumption before and during sporting and recreational activities.

**For Community Leaders and Policy Makers:**

- ✓ Establish policies that require organized sports activities follow safety procedures and practices, utilize safety gear and equipment, and provide adequate monitoring of activities.
- ✓ Work with schools, local recreation programs, athletic associations, and other organized sports programs to educate athletes about injury prevention principles and provide safety equipment.
- ✓ Provide education to the public about the potential hazards associated with recreational and sports activities and ways to reduce risks and prevent injuries.
- ✓ Work with local emergency responders, school nurses, and school faculty to implement proper emergency responses when an individual is injured.

# Focus on Motor Vehicle

**Definitions:**

Motor Vehicle – Motor vehicle injuries are injuries suffered as a result of a motor vehicle crash on a traffic way (including highways, city streets, or gravel roads) and on non-traffic ways (including parking lots or driveways).

Bicyclist – Bicyclist injuries include those sustained in traffic ways and non-traffic ways. This category includes bicyclist injuries when a bicyclist is struck by a motor vehicle (including a motorcycle or all-terrain vehicle) or when a bicyclist is injured and a motor vehicle is not involved in the crash. These injuries may occur on highways, streets, walking/biking trails, driveways, or open fields.

Pedestrian – Pedestrian injuries also occur on traffic ways and non-traffic ways. Pedestrian injuries include situations when motor vehicles hit a pedestrian and when a pedestrian is hit by a non-motorized vehicle such as a bicycle or animal.

Motorcyclist – Motorcyclist injuries, as with motor vehicle, bicyclist, and pedestrian, occur on traffic ways and non-traffic ways and may or may not involve another motorized vehicle or non-motorized vehicle.

Other – Other motor vehicles injuries include injuries that occur as a result of some type of motor vehicle, bicyclist, pedestrian, or motorcyclist crash but detailed information about the cause of the crash may not be recorded by the hospital or emergency department.

**The Problem:**

Motor vehicle crashes are the leading cause of death for Missourians ages 1 through 34 years. Every 5 minutes a Missourian seeks hospitalization or emergency room services due to a motor vehicle crash.

Missourians ages 15 to 24 have the highest rate (3,166.9 per 100,000 population) of injuries from motor vehicle crashes compared to all other age groups. The second highest rate is 1,940.6 for persons between 25 and 34. In 1999, white males, ages 15 to 24, have the highest rate of motor vehicle deaths at 53.6 per 100,000 population in Missouri. In 1999, the national motor vehicle death rate for this group was 30.71 per 100,000. Missouri far exceeded the national rate.

Research shows adolescents are most likely to speed, run red lights, ride with an intoxicated driver, and drive after using alcohol or drugs. Teenagers are more likely than older drivers to underestimate the dangers in hazardous situations and have less experience coping with hazardous situations.

It takes about three seconds to fasten a seat belt; using a lap/shoulder belt cuts the chance of being killed or seriously injured in a crash by about 50%. An unbelted occupant of a 30-mph car crash hits the windshield or other interior surface with the same impact as a fall from a three-story building.

Missouri law requires children under age four riding in any type of

# Focus on Motor Vehicle

vehicle to be secured in an approved child safety seat. The worst possible place for a child to ride is in the arms of an adult.

An unrestrained adult can literally crush a child against the interior of the car, if the child is not thrown out of the vehicle. The safest place for a child under 12 years of age to be appropriately secured is in the rear seat.

Of all 1999 Missouri traffic crashes, 4.6 percent were alcohol related. Of all fatal traffic crashes, 20.9 percent were related to drinking alcohol. In 1999, 217 persons were killed and 6,283 persons injured in alcohol related motor vehicle crashes. Of drinking drivers, 81.9 percent were male and 19.1 percent were female.

Between 70-80 percent of fatal bicycle crashes involve head injuries. Statistics show that bicycle helmets are 85-88 percent effective in reducing head and brain injuries.

Pedestrian involvement in traffic crashes frequently involves young children and occurs most frequently in urban areas. Approximately two-thirds of pedestrian fatalities occur between sunset and dawn.

Deaths and injuries resulting from motorcycle crashes involve more males than females, occur most frequently in urban areas, and involve males who were speeding and drinking. Motorcycle deaths are higher in the spring and summer months and occur more frequently on weekends and during evening and nighttime hours.

**Evidence-Based Prevention Interventions:**

**For Individuals/Parents:**

- ✓ Buckle Up. Assure all passengers and the driver are appropriately restrained by seat belts, child safety seats, or booster seats on every trip regardless of the distance or location of the trip.
- ✓ Stay Sober. Driving while impaired by alcohol or drugs is illegal and has been linked to 25 percent of traffic fatalities. Do not drive under the influence of alcohol or drugs and do not ride in a vehicle with a driver who is under the influence of alcohol or drugs.
- ✓ Observe speed limits. Excessive driving speed was a factor in about one-third of fatal traffic crashes in 1999.
- ✓ Drive alert, courteously and defensively; be patient, polite, and ready to react to driving conditions. Don't let frustration or anger cause carelessness or loss of control. Don't drive when drowsy; pull over to a safe spot and rest when drowsy. Keep in mind, motorists share the road with bicyclists, pedestrians and sometimes animals.
- ✓ Pay attention to weather conditions. Allow extra time to reach destinations, reduce speed when road conditions are not optimal, and allow plenty of room between

# Focus on Motor Vehicle

vehicles as stopping distances increase during times of adverse road conditions.

- ✓ Bicyclists should wear properly fitted helmets, maintain safety equipment on bicycles, use reflective clothing, and obey traffic laws. Never carry passengers on a bicycle. Walk bikes across busy intersections.
- ✓ Adult supervision is vital until children demonstrate traffic skills and good judgment. Don't allow a child under age 10 to cross streets alone. Require children to carry a flashlight at night, dawn, and dusk. Add reflective materials to children's clothing. Prohibit unsupervised play in driveways, unfenced yards, streets, or parking lots. Make sure children take the same route to common destinations (such as school) every time.

**For Community Leaders and Policy Makers:**

- ✓ Child safety seat laws have been proven to increase child safety seat use by 13 percent. Fatalities are reduced by 35 percent and all fatal and non-fatal injuries are reduced by 17.3 percent. Consider adopting ordinances to:
  - Require children through age 14 to ride restrained in all seating positions in any motor vehicle, and
  - Enhance penalties for offenders of child safety seat laws.
- ✓ Develop distribution and education programs regarding child safety seats, such as SAFE KIDS BUCKLE UP, that incorporate the following components:
  - Information hotline to provide educational materials and locate car seat events,
  - Car seat inspection/check up events to provide hands-on instruction on car seat use and installation,
  - Car seat distribution to provide free, low-cost, or loaner car seats to families in need, and
  - Educational workshops to provide basic facts about the need for restraining children in motor vehicles.
- ✓ Develop community-wide information and enforcement campaigns for the use of child safety seats to include:
  - Educational workshops about properly fitting child safety seats for children and safe installation of child safety seats,
  - Car seat inspection/check up events, and
  - Stepped up enforcement of child safety seat laws.
- ✓ Support and develop educational programs to teach practical, skills-based training to improve child pedestrian behavior.
- ✓ Conduct community-wide enhanced enforcement campaigns, targeted towards increased seat belt use among adolescents and adults, in addition to normal enforcement practices coupled with publicity about the campaign.

# Focus on Motor Vehicle

- ✓ Develop primary enforcement of seat belt ordinances for all occupants in motor vehicles.
- ✓ Develop helmet distribution and education programs regarding bicycle safety to include:
    - Bicycle inspection/check up events, “Bike Rodeos”, to provide hands-on instruction,
    - Bicycle helmet distribution at no or low-cost to children, and
    - Educational workshops to provide basic facts bicycle safety and “rules of the road”.

# Focus on Cut/Pierce

**Definition:**

Injuries that result from being cut or pierced include open wounds and lacerations. Many of the injuries caused by being cut or pierced are related to the use of power hand tools, power lawnmowers, household appliances and implements, knives, swords, daggers, hypodermic needles, nails, broken glass, thorns, scissors, lawn and garden tools, saws, and other objects.

**The Problem:**

Being cut or pierced is the fourth leading cause of injury to Missourians. Every ten minutes a Missourian injured as a result of being cut or pierced seeks treatment in the emergency room or hospital.

Men are 200% more likely to be injured from cutting or piercing than women. Adolescent boys and young men ages 15 to 24 years have the highest rate, 2,458 per 100,000 population, of cut or pierce injuries, followed by men ages 25 to 44 years at a rate of 1,766 per 100,000. Male children under age 15 have the third highest rate, 1,438 per 100,000, of injuries from cutting or piercing.

Injuries from cutting or piercing occur in many settings including work, recreation, and home. Power tools such as chain saws, weed whackers, and lawnmowers are especially hazardous due to exposed cutting blades. According to the American Academy of Orthopaedic Surgeons, lawnmower injuries account for a large percentage of partial or complete amputations.

**Evidence-Based Prevention Interventions:**

**For Individuals/Parents:**

- ✓ Read instruction manuals prior to operating equipment.
- ✓ Never take a child for a ride on a riding lawnmower or garden tractor.
- ✓ Keep children indoors and supervised at all times when any outdoor power equipment is being used.
- ✓ Don't remove or disengage safety devices, shields, or guards from power equipment.
- ✓ When using knives, sheers, or other cutting tools, cut in a direction away from your body.
- ✓ Do not carry sharp or pointed tools in pockets; use a tool belt or toolbox to carry hand tools.
- ✓ Keep hands and fingers away from saw blades.
- ✓ Do not carry a saw by the blade; use safety handles.

**For Community Leaders and Policy Makers:**

- ✓ Provide information about products that have been recalled because of safety hazards.
- ✓ Provide education to the public about the potential hazards associated with the operation of power tools and equipment.
- ✓ Promote safer work practices and workplace safety standards.

# Focus on Overexertion

**Definition:**

Overexertion is a non-impact injury resulting from excessive physical effort or strenuous movement that can occur because of instantaneous or acute events or through chronic or repetitive exposure. Overexertion injuries happen during daily activities such as work, exercising, hobbies, recreation, or other activities.

**The Problem:**

Overexertion is the fifth leading cause of unintentional injury in the state. In Missouri, an injury resulting from overexertion required an emergency room visit or hospitalization every 10 minutes, in 1999. Missourians between the ages of 25 and 44 are most likely to experience injuries related to overexertion.

According to data for the Missouri Department of Labor and Industrial Relations, 27% of all nonfatal occupational injuries and illnesses involving days away from work are the result of overexertion.

**Prevention Interventions / Recommendations:**

**For Individuals/Parents:**

- ✓ Use correct lifting and moving techniques.
- ✓ Exercise regularly to keep muscles strong and flexible.
- ✓ Pay attention to signals from your body indicating overexertion.

**For Community Leaders and Policy Makers:**

- ✓ Promote safer work practices and workplace safety standards.
- ✓ Promote job training for workers.
- ✓ Conduct consumer education about workplace hazards associated with various jobs.
- ✓ Prosecute employers who disregard safety work place standards.